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VILLAGE OF LUCKNOW - 1964
COUNTY OF BRUCE

THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

OF THE

VILLAGE OF LUCKNOW

1964

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Report on water pollution survey of the village of Lucknow

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R E P O R T

on

WATER POLLUTION SURVEY

of the

VILLAGE OF LUCKNOW

Dates of Sampling: - May 6, 1964
June 11, 1964
July 29, 1964

Division of Sanitary Engineering

R E P O R T

ONTARIO WATER RESOURCES COMMISSION

A water pollution survey was carried out in the Village of Lucknow on May 6, June 11 and July 29, 1964, to ascertain whether conditions exist which may cause pollution of the Lucknow River as it flows through the village.

INTRODUCTION

This survey is in keeping with the functions of the Ontario Water Resources Commission in its programme to control pollution of all surface and ground water in the province. The procedure followed is to examine these waters to find all sources of pollution and to take steps to abate these where there is an impairment of the quality of the water. In this way, an effort is being made to ensure a water quality which will make these waters useful for such purposes as sources of domestic water supply, fish and wildlife, recreation, industry, agriculture, navigation and all riparian activities.

GENERAL

The Village of Lucknow, with a population of 1,066 and a taxable assessment of $1,014,000, is situated in the Township of Kinloss on the county line dividing the Counties of Bruce and Huron.

The village is situated on the banks of the east and west branches of the Lucknow River. The Lucknow River flows in a

south-westerly direction for approximately 16 miles and empties into Lake Huron at the hamlet of Port Albert.

WATER USES

Municipal Water Systems

The village is supplied by a municipally operated water system which draws its water from two drilled wells. The estimated consumption is 100,000 gallons per day. There is no treatment provided to the supply. The bacteriological and chemical quality of the water was satisfactory at the time of the last inspection by the Commission.

Recreational Uses

There is no designated area for swimming in the stream, but it is used for this purpose at various points downstream of the village.

WATER POLLUTION

Sanitary Waste Disposal

The village does not have a municipal sewage treatment works. Individual systems are being used to dispose of the sanitary wastes. Information obtained at the time of the survey indicated that some septic tanks were discharging to the watercourse via private drains and connections to the storm sewer system.

To date, there has been no serious consideration given by council towards a municipal sewage treatment works programme. The Commission has recommended for several years that a

consulting engineer be retained by the village to prepare a preliminary report.

Refuse Disposal

The refuse disposal area is located in the north section of the village. An open-face method of refuse disposal is practised at this location. No apparent pollution problem is created by the refuse disposal area.

Industrial Waste Disposal

The Silverwood Dairies Limited milk processing plant is the only industry which has a significant waste water discharge. The industry has installed a spray irrigation system to dispose of the process waste water. Samples were taken from the river before and after the system was put into operation. The results of the samples indicate that the treatment provided by the firm has alleviated the polluted condition which existed in the stream due to process milk wastes.

Sampling Procedure

Samples were collected for bacteriological examination and chemical analysis from the Lucknow River and from the outlets of private drains and storm sewers which were discharging to the river. Some outlets were observed which revealed evidence of previous waste water discharges but these were not flowing at the time of sampling.

Interpretation of Results

Biochemical Oxygen Demand (BOD)

The biochemical oxygen demand indicates the amount of oxygen required for stabilization of decomposable organic matter. A desirable upper limit in natural water is 4 parts per million.

Total Coliform Count

The coliform count is reported per 100 millilitres and indicates bacteriological contamination by human or animal excrement or by some non-faecal forms. A Membrane Filter (MF) count of not more than 2,400 organisms is considered desirable in streams.

Summary of Sample Results

For the location of the sampling points, refer to the map appended to this report. A resumé of the sample results attached to the report indicates that contaminated water is being discharged to the river from a wide variety of sources.

Particular notice should be taken of the improvement in the sample results at the Silverwood Dairies Limited drain outlet due to the installation of a spray irrigation system.

At all of the sampling points, which included storm sewer outlets, ditch drains, private drain outlets and the river itself, pollution was demonstrated in varying amounts.

The discharging of contaminated waste water to the river can be controlled by the installation of adequate individual

treatment systems or the installation of a municipal treatment works.

SUMMARY

1. The results of samples taken in the Village of Lucknow indicate that contaminated waste water is being discharged to the Lucknow River.

2. The installation and operation of a spray irrigation system by Silverwood Dairies Limited has eliminated the discharging of contaminated waste water to the river from the plant.

3. The pollution of the river may be corrected by adequate individual treatment systems or by a municipal treatment works.

RECOMMENDATION

It is recommended that the Village of Lucknow take the necessary action to prevent the discharging of contaminated waste water to the Lucknow River.

All of which is respectfully submitted,

District Engineer _____
A. B. Redekopp

Approved by _____
K. H. Sharpe, Director

/ct

TABLE 1

VILLAGE OF LUCKNOW - WATER POLLUTION SURVEY

Date (1964)	Sampling Point No.	Description	5-Day BOD (ppm)	Total Solids (ppm)	Susp. Solids (ppm)	Turbidity in Silica Units	M.F. Coliforms per 100 ml
May	LUW-17.4	Lucknow River - west branch 500 feet up- stream from Silverwood Dairies drain outlet	0.6	422	8	-	300
June			-	-	-	-	3,000
July			0.8	412	-	4.0	1,700
May	LUW-17.3-1	Lucknow River - west branch Silverwood Dairies drain outlet	102	462	44	-	1,050,000
June			-	-	-	-	114,000,000
July			0.8	384	2	-	280
May	LUW-17.2	Lucknow River - west branch 500 feet downstream from Silverwood Dairies drain outlet	2.4	426	11	-	2,100
June			-	-	-	-	21,000,000
July			0.8	402	-	2.9	300
May	LUW-17.0-D	Lucknow River - west branch at Rose Street ditch outfall	13.0	812	82	-	10,700
June			-	-	-	-	59,000
July			1.4	404	-	1.8	1,500
May	LUW-16.8-D	Lucknow River - west branch at Hamilton Street ditch outfall	14.0	597	94	-	39,000
June			-	-	-	-	6,000
July			1.2	416	-	2.1	8,000
May	LUW-16.8-P	Lucknow River - west branch at private drain outlet 100 feet upstream from Wheeler Street	0.3	466	1	-	1,100
June			-	-	-	-	7,000
July			-	-	-	-	-

TABLE 1 - Cont'd.

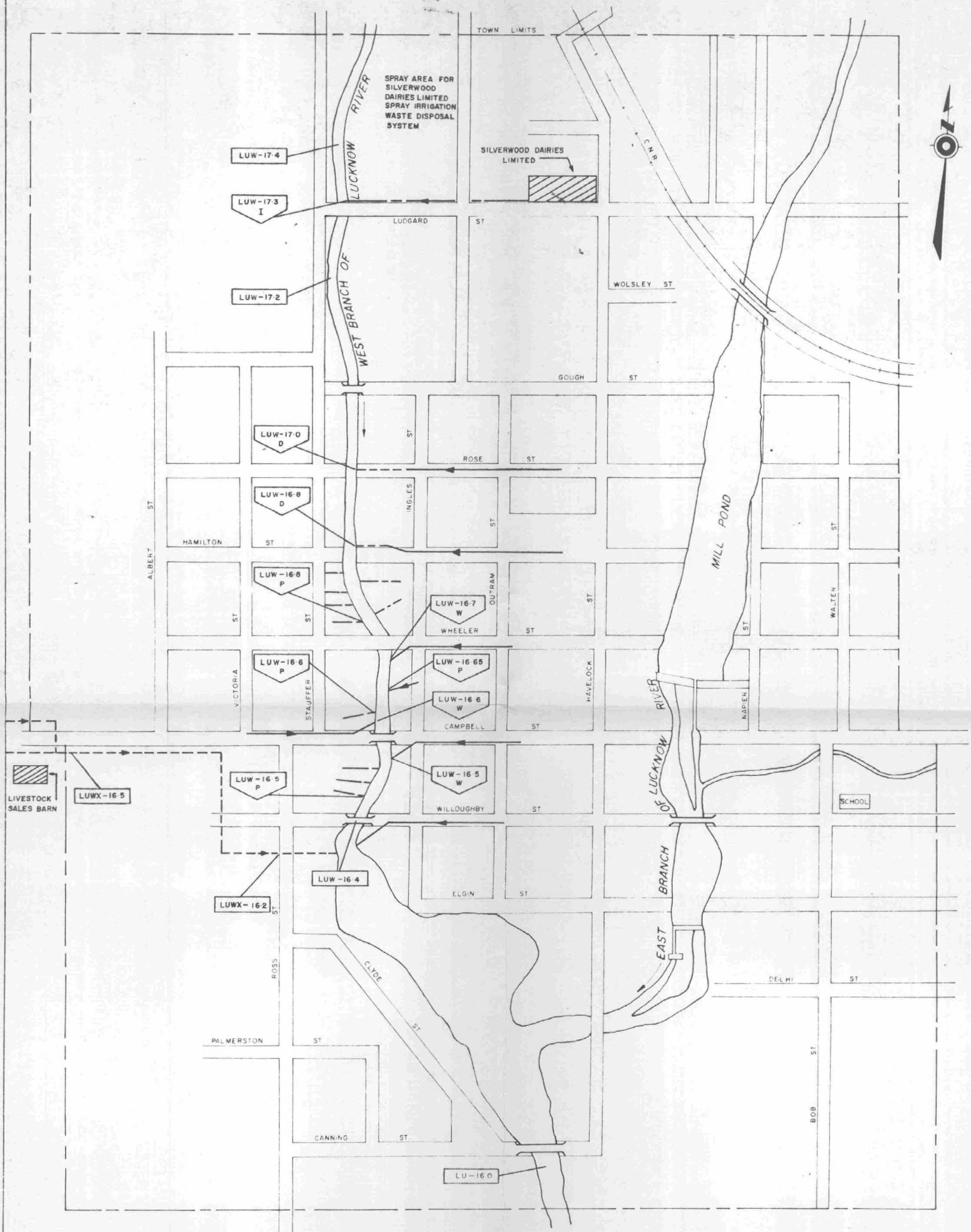
VILLAGE OF LUCKNOW - WATER POLLUTION SURVEY

Date (1964)	Sampling Point No.	Description	5-Day BOD (ppm)	Total Solids (ppm)	Susp. Solids (ppm)	Turbidity in Silica Units	M.F. Coliforms per 100 ml
May	LUW-16.7-W	Lucknow River - west	0.7	571	63	-	3,900
June		branch at storm sewer	-	-	-	-	41,000
July		outlet at south-east side of Wheeler Street bridge	0.9	404	-	3.6	1,600
May	LUW-16.65-W	Lucknow River - west	11.0	866	6	-	11,700
June		branch at storm sewer	-	-	-	-	490,000
July		outlet 100 feet down-stream from Wheeler Street bridge	4.7	554	46	-	22,000
May	LUW-16.6-P	Lucknow River - west	33.0	624	194	-	520,000
June		branch at private	-	-	-	-	360,000
July		drain outlet at rear of stores north of Campbell Street	-	-	-	-	-
May	LUW-16.6-P	Lucknow River - west	90	684	66	-	520,000
June		branch at private	-	-	-	-	850,000
July		drain outlet at rear of stores north of Campbell Street	-	-	-	-	-
May	LUW-16.5-W	Lucknow River - west	1.6	648	5	-	6,500
June		branch at storm sewer	-	-	-	-	112,000
July		outlet at rear of stores south of Campbell Street	1.0	394	-	2.1	2,600

TABLE 1 - Cont'd.

VILLAGE OF LUCKNOW - WATER POLLUTION SURVEY

Date (1964)	Sampling Point No.	Description	5-Day BOD (ppm)	Total Solids (ppm)	Susp. Solids (ppm)	Turbidity in Silica Units	M.F. Coliforms per 100 ml
May	LUW-16.5-P	Lucknow River - west	125.0	1,066	88	-	8,000,000
June		branch at private	-	-	-	-	72,000,000
July		drain outlet at rear of stores south of Campbell Street	-	-	-	-	-
May	LUW-16.4	Lucknow River - west	1.6	400	13	-	1,500
June		branch at Willoughby	-	-	-	-	13,000
July		Street bridge	0.6	406	-	2.0	3,800
May	LUWX-16.5	Lucknow River - west	2.4	640	230	-	1,000
June		branch tributary at	-	-	-	-	4,000
July		Campbell Street at western limits of village.	-	-	-	-	-
May	LUWX-16.2	Lucknow River - west	1.1	354	9	-	310
June		branch tributary at	-	-	-	-	2,000
June		Ross Street	0.9	372	-	2.6	4,500
May	LU-16.0	Lucknow River at	1.3	390	10	-	170
June		Canning Street	-	-	-	-	7,000
July			1.2	342	-	2.5	2,200



LEGEND

- LU-16·0 — SAMPLING POINT SHOWING STREAM AND MILEAGE
- LUW-16·5 W — STREAM AND MILEAGE AT OUTFALL — TYPE OF OUTFALL
- W — STORM SEWER
- I — INDUSTRIAL
- D — DITCH
- P — PRIVATE SEWER
- STORM SEWER OUTLET
- OPEN DITCH
- PRIVATE DRAIN OUTLET

ONTARIO WATER RESOURCES COMMISSION

VILLAGE OF LUCKNOW

WATER POLLUTION SURVEY

SCALE 400 200 0 400 FEET	
DRAWN BY L L B	DATE JAN, 1965
CHECKED BY	DRAWING No 65-10